

**Amendments**

**In the Claims:**

Cancel claims 17-19 and 79-98 without prejudice or disclaimer. Add new claims 99 to 121.

99. A method for obtaining bioactive substances from plant material, comprising:  
mechanically disrupting the material by grinding, crushing, or macerating;  
contacting the disrupted material with supercritical fluid at high pressure to  
remove bioactive substances from the plant material;  
collecting the removed bioactive substances with a resin trap;  
eluting the bioactive substances from the resin trap;  
and separating the substances by supercritical fluid chromatography, wherein the  
supercritical fluid that contacts the disrupted material comprises carbon dioxide, alcohol  
and isopropyl amine as a secondary modifier.
100. The method of claim 99, wherein the plant material is Kava root.
101. The method of claim 99, wherein the plant material is leaves and bark of  
*Byrsonima crassifolia*.
102. The method of claim 99, wherein the supercritical fluid chromatography is  
carried out by passing the supercritical fluid through an NH<sub>2</sub> column.
103. The method of claim 99, wherein the resin trap is a C-18 resin.
104. The method of claim 99, wherein the column is maintained at a temperature of at  
least 90 degrees.
105. A method for obtaining a high recovery of kawain and methysticin from kava root,  
comprising:

mechanically disrupting the kava root by grinding, crushing, or macerating to prepare an extract;

contacting the disrupted material with supercritical carbon dioxide and an alcohol at a pressure of at least 350 atmospheres and separating the substances by supercritical fluid chromatography;

collecting the removed kawain and methysticin with a resin trap;

eluting the kawain and methysticin substances from the resin trap.

106. The method of claim 105, wherein the alcohol is ethanol at 15%.

107. The method of claim 105, wherein the chromatography is carried out at 60 degrees centigrade.

108. The method of claim 105, wherein the supercritical pressure is maintained between 350 to 450 atmospheres.

109. The method of claim 105, wherein the column is maintained at a temperature of at least 90 degrees centigrade.

110. A method for obtaining a high recovery of kavalactones [p.32 line 11, Table 1] from kava root, comprising:

mechanically disrupting the kava root to prepare an extract by grinding, crushing, or macerating;

contacting the disrupted material with supercritical carbon dioxide and an alcohol at a pressure of at least 275 atmospheres and separating the substances by supercritical fluid chromatography over an NH<sub>2</sub> column;

collecting the removed kavalactones with a resin trap; and

eluting the kavalactones from the resin trap.

111. The method of claim 110, wherein 15% of the carbon dioxide by volume is replaced with ethanol.

112. The method of claim 110, wherein the extracted methysticin is further purified by supercritical chromatography over an NH<sub>2</sub> column.

113. The method of claim 110, wherein the NH<sub>2</sub> column is operated at a temperature above 40 degrees centigrade.

114. The method of claim 110, wherein the analysis time is reduced by using a methanol in carbon dioxide gradient of from 7% to 10%.

115. The method of claim 110, wherein the column is maintained at a temperature of at least 90 degrees centigrade.

116. A method for obtaining bioactive substances from a plant material, comprising:  
mechanically disrupting the plant material by grinding, crushing, or macerating;  
contacting the disrupted material with supercritical fluid of carbon dioxide with an alcohol at high pressure to remove the bioactive substances from the plant material;  
collecting the removed bioactive substances with a resin trap;  
eluting the bioactive substances from the resin trap and separating the substances by supercritical fluid chromatography over an NH<sub>2</sub> column,  
wherein isopropyl amine is mixed into the alcohol prior to mixing the alcohol with carbon dioxide as a secondary modifier.

117. The method of claim 116, wherein the supercritical fluid in contact with the NH<sub>2</sub> column is carbon dioxide and alcohol.

118. The method of claim 116, wherein the column is maintained at a temperature of at least 90 degrees.

119. The method of claim 116, wherein the plant material is Kava root.